



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
1 CONGRESS STREET, SUITE 1100 (HBT)
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Mr. Emil Klawitter (eeklawitter@efdnorth.navfac.navy.mil)
Northern Division, Naval Facilities Engineering Command
Code 1823/EK
10 Industrial Highway, Mailstop 82
Lester, PA 19113-2090

***Final Report, Monitoring Event 13 - November 1998, Sites 1 and 3, Eastern Plume,
Naval Air Station, Brunswick, Maine***

Dear Mr. Klawitter:

Thank you for the opportunity to review the Event 13 report; it's concise and has some significant improvements over prior reports. Attached are EPA's comments which include pertinent comments from the Direct Push and Monitoring Well Installation Report.

We've limited our comments primarily to data quality and display issues which could affect results interpretation. Our comments to the actual results and trends will be to the 1998 Annual Report.

We've also utilized the ArcView GIS CD of monitoring event results which is a great improvement and presents a potential quantum leap of data usability. If you have any questions, please contact me at 617-918-1344 or barry.michael@epamail.epa.gov.

Sincerely,

Michael S. Barry
Remedial Project Manager
Federal Superfund Facilities Section

Attachment

cc. Claudia Sait/ME DEP (claudia.b.sait@state.me.us)
Larry Dearborn/ME DEP (larry.l.dearborn@state.me.us)
Tony Williams/NASB (WilliamsA@nasb.navy.mil)
Steve Mierzekowski/USFWS (steve_mierzykowski@mail.fws.gov)
Carolyn LePage/LePage Environmental (clepagegeo@aol.com)
Pete Nimmer/EA Environmental (pln@eaest.com)
Jeffery Brandow/ABB-ES (jbrandow@harding.com)
Alastair Lough/Gannet-Fleming (jlough@gfnet.com)
Tom Fusco/BACSE
Ed Benedikt/Brunswick Conservation Commission (rbenedik@gwi.net)
Rene Bernier/Topsham Community Rep.

Attachment
Monitoring Event 13 - November 1998
Sites 1 and 3 and Eastern Plume
Naval Air Station, Brunswick, Maine

General Comments

1. Several potential groundwater data validity issues were noted.

✓ a. **Groundwater stabilization criteria.** The criteria used at Brunswick Naval Air Station, while unchanged from prior events, are less stringent than recommended by the USEPA Region I Low-Flow Method.

✓ b. **Peristaltic pumps** are used to sample some wells. While it isn't possible to use dedicated submersible pumps in all cases (e.g. narrow diameter piezometers), it is preferable. Review of the data collected indicates that MW-105A and MW-334 reported saturation levels of dissolved oxygen. Since peristaltic pumps can create air bubbles in the flow stream, these readings may have been artificially enhanced. In addition, these wells were purged at rates higher than recommended by the Region I Low-Flow Method. Additionally, degassing could cause pH modification and loss of volatile components.

BR **Recommendation:** Use permanent dedicated immersion pumps but also identify wells that can only be sampled with peristaltic pumps. For all wells sample only at rates recommended by the USEPA Low Flow Method. If non-dedicated pumps are used, update the field data forms to record the screen top and bottom and sampling depth, in order to verify sampling within the appropriate well screen interval

✓ c. **Purge volume.** Review of the stabilization data indicates that 28 wells did not achieve purging of even 1 well volume prior to sampling. In as many as 6 cases, the volumes purged were likely to have been less than 1 saturated-screen interval. Such a pattern of low purge volumes, coupled with less stringent stabilization criteria can call into question whether in some cases, testing results are truly representative of ambient groundwater conditions.

BR ✓ **Recommendation** The Field Record of Well Gauging, Purging, and Sampling includes an entry to calculate three well volumes under the section for Well Volume for comparison with the purged volume. In sampling, please purge consistently to the Long Term Monitoring Plan or propose a more locally appropriate purge volume.

- ✓ 2. **Surface water data validity** was compromised by TCE and PCE between 1 and 4 ppb in several eastern plume QC blanks. Several metals were also detected at low levels in the sites 1 and 3 QC blanks. However, results don't indicate either widespread VOC's or levels above the MCL in surface water.

- BR ✓ 3. **VOC contours** in Figures 13 and 14 were reasonable given the data points and the non-linear decay of VOCs with distance. Areas of lower confidence in the VOC contours of Figure 14, the Interpreted Total VOC Contour Map for Deep Wells are:

- a. P-105 is no longer sampled, but we believe VOC's would track roughly with P-106 (over 4,000 ppb) as in past events and that the 100 ppb VOC contour should go around it.

- b. EW-4 which was not sampled.
 - c. Immediately East and South of the "DP-EP-05, DP-EP-06, and DP-EP-07" area. (Assuming losses are to surface water, but there are no data points across the streams and surface water quality sampling has yet to prove effective.)
 - d. At MW-105A because it isn't screened as close to the clay layer as MW205.
 - e. Southeast (downgradient) of P106, where no data points reside and there is a large gap between MW-305 and MW-309B.
4. **Groundwater Potentiometric Contours.** Including piezometers P-111 and P-112 in the contouring of shallow groundwater potentiometric surfaces, assuming it's hydro-geologically appropriate, has improved the resolution of the piezometric surface in the vicinity of extraction wells EW-2, EW-3, EW-4. Adding detailed figures around the extraction wells was also a significant presentation improvement.
5. **Figures and nomenclature** were much improved in this report. Several minor errors were noted, several are systemic and could be fixed in future reports, see specific comments.

Specific Comments

- 6. **Section 1.2.2, Para. 1, Bullet 2.** The blockage to off-site piezometer P-123 is apparently permanent. Please replace this piezometer or justify/recommend removing it from the LTMP.
- 7. **Section 1.2.2, Para. 4.** This paragraph is awkwardly worded. Perhaps it could be simplified to basically say the deepest waste is at 32.9 MSL at MW-234R and that about 0.4 feet of waste is wetted. These water levels are typical of past events; please see attached chart.
- 8. **Section 1.3.1, Para. 1.** Wells MW-330 and MW-333 are listed as having been sampled with a peristaltic pump. The field records of Appendix A do not indicate this.
- 9. **Section 1.3.3.1, Bullet 1.** This bullet reports that 3 of 8 wells experienced turbidity in excess of 10 NTU. A fourth well, MW-202A, also had turbidity greater than 10 NTU.
- 10. **Section 1.3.3.2, Bullet 3.** The saturated dissolved oxygen measurement at MW-105A may have been impacted by sampling with a peristaltic pump at a high purge rate; such a possibility should be mentioned in future reports.
- 11. **Section 1.3.3.4, Bullet 2** should apparently indicate that EW-4 vice EW-3 was taken offline due to the reasons cited. Table 5 shows EW-3 flow rates and run-time hours over the entire period of Aug. 1 to Nov. 30th, and that EW-4 was taken offline on Nov. 4, 1998.
- 12. **Section 1.3.5.4, Para. 2, Bullet 4.** The two specific VOCs that were above MEG/MCL levels should be indicated, as they are in the other bullets. In this case they were TCE and 1,1-DCE.
- 13. **Table 5.** We recommend this table be replaced with a summary table of flow rates and run times since the last event. Daily information is in available in the monthly reports.
- 14. **Table 17.** This table is missing data from Seep-03.

15. **Table 19/Figure 2.** Please update the nomenclature for gas probes to match that of Figure 2 for the next report.
16. **Figure 1.** The color site location map at is a significant improvement but the eastern plume shape should be modified in the next report. If all sites were added to this figure the same one could be used for all sites.
17. **Figure 2** contains stream gauging locations that aren't identified in the legend. Also, the apparent Sites 1 and 3 trenches shown in are an excellent addition and we recommend they be included in all figures.
18. **Figures 2, 3, and 4.** Adding the Site 2 landfill outline to these figures helps for site orientation; we recommend including it on all figures.
19. **Figures 3, 5, and 6.** Piezometer P-112 appears to been listed as EP-112.
20. **Figure 7, Detail B.** No piezometers are within the cone of depression for EW-4. Also, while the cone of depression is constrained by 2 water table contours, the control points for those contours are relatively distant. Thus, the cone of depression contours should be dashed to indicate inference, as was done in Figure 6.
21. **Figure 12.** Recommend indicating that MW-201R is located outside the slurry wall.
22. EPA has been tracking several minor concerns; graphs are enclosed for your information.
 - a. Arsenic in MW-218. No clear trend here; to continue monitoring.
 - b. Zinc in SW-1. Since event 5 it's been tracking at about the AWQC. Switched to using SW-4 on event 13 because SW-1 isn't sampled anymore.
 - c. Mercury in leachate sediment. Since event 7 the average level has been tracking below the MCL/MEG.







